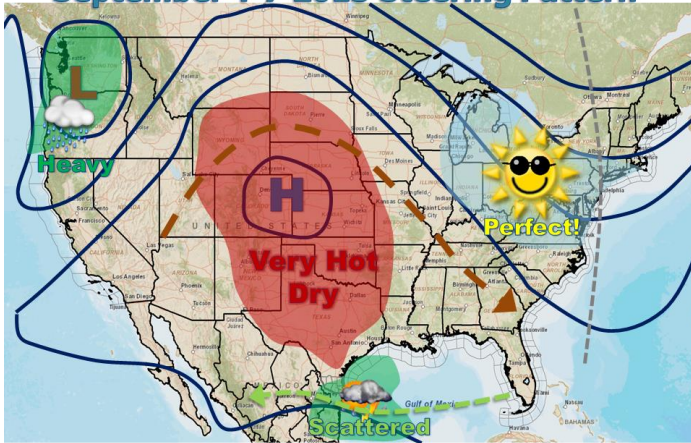
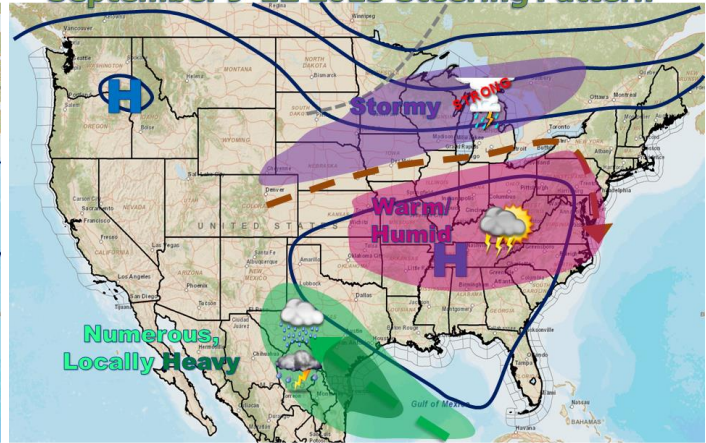


Early September 2013 Update

September 4-7 2013 Steering Pattern



September 9-12 2013 Steering Pattern



From This...

...To This?

Pattern Shift To Bring Helpful Rain to Valley, Central Texas

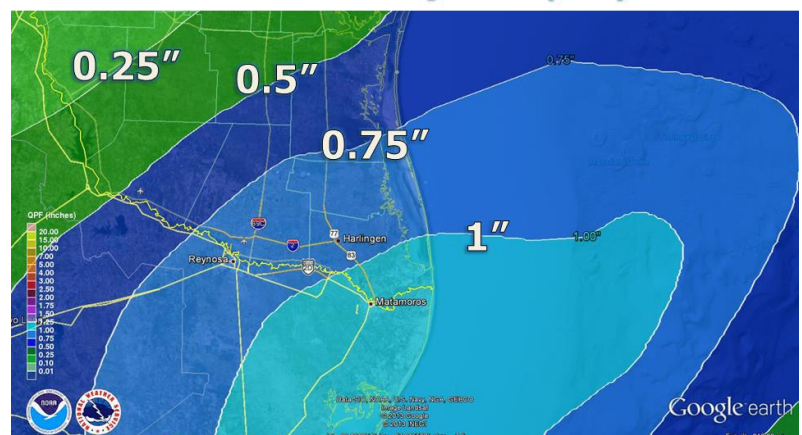
Some Locations Could see more than 5 inches of rain by Sept. 12th, 2013

Could it finally be happening? For the first time since September, 2010, there is increasing confidence for monthly rainfall across the Rio Grande Valley, and perhaps much of South Texas, to approach the long term average – 3 ½ to 6 ½ inches for the month – in 2013. After prolonged dominance of “La Canícula” High pressure well before and after the typical seasonal occurrence (mid-July through mid-August), including both September 2011 and much of September 2012, the core of the ridge shifted north by the last week of August, with some welcome rains between the 25th and 27th followed by a brief period of drying through September 1, as the ridge “nudged” southward. By Labor Day, weak easterly flow returned scattered showers and storms to the region.

September 5-7 Forecast: Fits and Starts

Disturbed weather across the Bay of Campeche and Southwest Gulf, courtesy of a weak tropical wave, will ease into the Rio Grande Valley on the 5th and provide 30 to 50 percent coverage of rain across the Rio Grande Valley by day’s end, beginning during the mid to late morning hours near the coast and redeveloping from the mid Valley through the ranchlands during the afternoon. The dominant lift arrives on September 6th as the wave crosses the region; scattered to numerous showers and thunderstorms should arrive on the coast by daybreak, then press into Cameron and Willacy County through late morning and reach into Hidalgo County toward noon or thereabouts. How much rain falls farther west may be influenced by cloud cover spreading across the region from the earlier morning activity. Remnant moisture will help reignite the process again on the 7th, with a bit less coverage near the coast. The potential for additional heating farther inland may allow storms to “fill in” and create more rainfall for locations such as Starr and Zapata County Saturday afternoon compared with Friday afternoon. Overall “best forecast” rainfall totals through 7 AM Saturday are shown at right.

Forecast Rainfall Sep. 4-7 (AM) 2013*



*Locally 2-3" where persistent/repeated storm cells occur

September 9-12 Forecast: Better Opportunity?

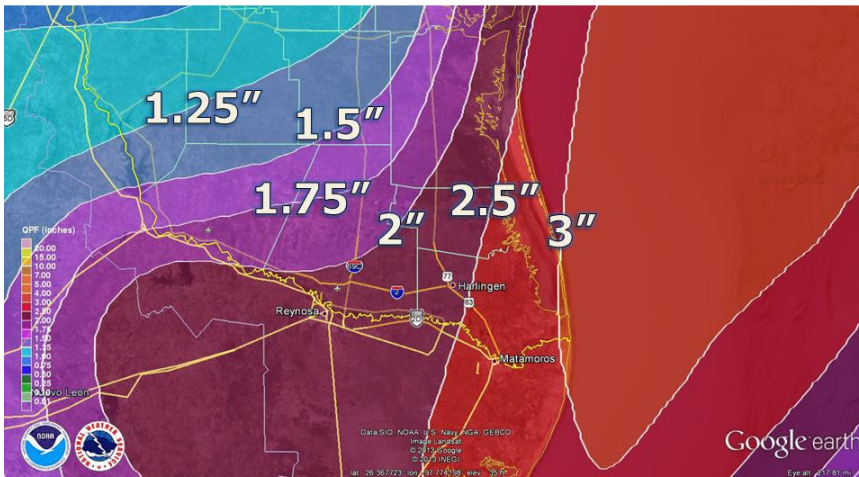
Rarely during the past several months has atmospheric high pressure been centered over the eastern or southeastern U.S. In mid-July, anomalously strong atmospheric [high pressure briefly set up across the northeast U.S.](#) as an energy wave slid from the Ohio Valley southwest to northwest Mexico. A stream of deep tropical moisture developed behind the wave and lifted into the eastern slopes of the Sierra Madre Occidental, filling reservoirs in the Rio Conchos and ultimately providing [rapid water flows into the Rio Grande between Presidio and Amistad](#). Current data suggest for a period between September 8th and 13th, atmospheric high pressure will dominate the southeastern U.S.; flow around this high will turn more from the southeast and should import Caribbean moisture toward the Rio Grande Valley and much of South Texas. Embedded energy waves in this flow, should they materialize, could drop several inches of rain in a few days. The best

opportunity for widespread heavier rain would include areas along and east of Highway 77, with a gradual dropoff into the mid and upper Valley.

Exactly which days have the heavier rainfall during the week of September 8th will be determined over the weekend; current indications suggest Tuesday through Thursday (10th through 12th) as the best opportunity. Increased cloud cover should help knock down afternoon temperatures; locations receiving several hours of rain into the early afternoon will struggle to reach 90°F.

The “best forecast” for the total rainfall through September 11th is shown at left.

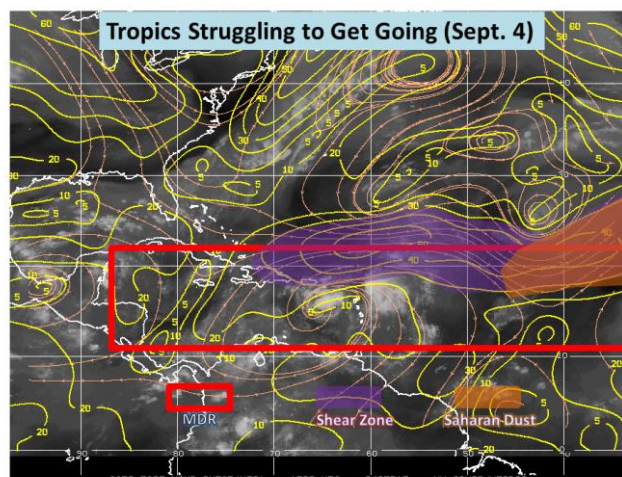
Forecast Rainfall Sep. 4-11 2013*

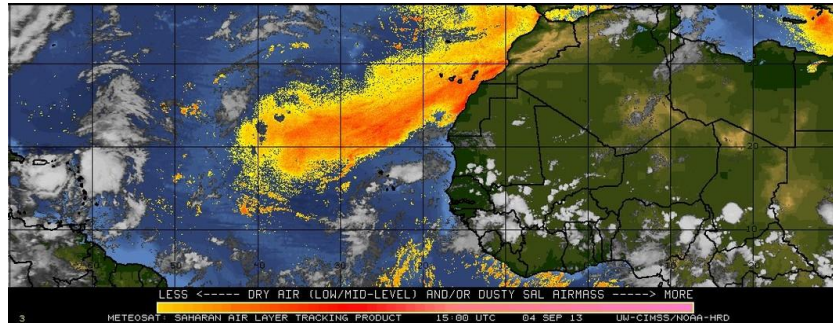


***Locally 5" or more where persistent/repeated storm cells occur**

Whither the Tropics?

“Failure to Launch” continues to be the movie title for the 2013 Hurricane Season. The combination of dry air pockets and persistent westerly wind shear across much of the northern portion of the main development region (MDR) (bottom) and a pocket of easterly shear across the southern edge of the MDR west of Africa has eliminated nearly all tropical development since mid-August. Another round of Saharan Dust migrated into the shear area (top of next page), further inhibiting development. One area of concern that had an increasing likelihood of development was nearing Puerto Rico; interaction with land masses of the West Indies, followed by interaction with the remnants of an east coast trough should turn anything that develops away from the U.S. east coast and into the western Atlantic – a “fish storm”. This system could strengthen, but how much is unknown.





Tropical Factoids: The 2013 Atlantic Season So Far

- Through September 4: Six tropical storms, zero hurricanes
- The latest first hurricane to form on record (since the satellite era) was Gustav, September 11th, 2002
- The latest first hurricane to form on record (pre-satellite) was September 16th, 1941
- Each record has a chance to be broken in 2013
- The [Accumulated Cyclone Energy \(ACE\) Index](#), a measure of total strength of tropical cyclones that includes number of storms, wind speed and life cycle, is a paltry 8.11 as of September 4th. The forecast seasonal ACE on August 8th was expected to be 120 to 190% of median.
- September 10th is the peak of the Atlantic Hurricane Season. On average, three hurricanes, one of them “major” (Category 3 or higher wind), has formed by then.
- The [Madden Julian Oscillation](#), a periodic occurrence that crosses the tropical and subtropical regions of the world in a 40 day cycle, is only marginally supportive of the necessary latent heat to increase storm formation and growth. The “drier” phase arrives in the Gulf and Caribbean by mid-month and reaches the Atlantic by the final 10 days of September.
- **Keep in Mind:** Despite the very slow ramp up to the middle of the 2013 season, **never forget Beulah**, which ravaged the RGV **September 20-22, 1967**. The expected pattern evolution, *should it continue through late September*, could open the door to any wave that develops in the western Caribbean to move toward the northwest Gulf. Texas’ hurricane season doesn’t typically end until the first “real” cold front sweeps through, usually by early to mid-October. **Bottom Line: Stay Prepared and Aware!**